

## IWBAT

- define simple interest
- understand simple interest and the formula  $I = prt$
- practice computing a balance in an account incorporating interest.

## Banking: Simple Interest

02/16/17

Interest - a fee for borrowing money calculated as a % of the money borrowed/balance owed

Simple interest - accrues on the original balance only

$$I = prt$$



$$P = \frac{I}{RT}$$

Total value =  $p + I$   
(Future value)

IWBAT define simple interest, understand simple interest and the formula  $I = prt$ , and practice computing a balance in an account incorporating interest.

## Banking: Simple Interest

Five year old Johanna deposits \$100 of Christmas money in a savings account which pays 3% simple interest. With no further deposits or withdrawals, how much will her account be worth at Christmas when she is 18?

$$FV = P + I = \$100 + \underbrace{\$100}_{P} \underbrace{(13\text{yr})}_{T} \underbrace{(0.03/\text{yr})}_{R}$$
$$FV = \$139$$

IWBAT define simple interest, understand simple interest and the formula  $I = prt$ , and practice computing a balance in an account incorporating interest.

## Banking: Simple Interest

Compounding period

annually

semiannually

quarterly

monthly

weekly

daily

1 time per year  
2  
4  
12  
52  
365

IWBAT define simple interest, understand simple interest and the formula  $I = prt$ , and practice computing a balance in an account incorporating interest.

### Banking: Simple Interest

Jessy deposits \$300 in a savings account which pays 3% simple interest compounded monthly. With no further deposits or withdrawals, how much will the account be worth in eight years?

$$\$300(.03)(8) + \$300 = \$372$$

### Periodic Interest Rate

$$\frac{R}{n} \quad \frac{3\%}{12_{mo}} = .25\%/\text{month}$$
$$\$6/\text{mo} \times 12_{mo} = \$72$$

IWBAT define simple interest, understand simple interest and the formula  $I = prt$ , and practice computing a balance in an account incorporating interest.

### Banking: Simple Interest

#### Define simple interest in your own words.

Interest paid at arranged time periods  
calculated by multiplying the principal  
by the time and the interest rate ( $I = prt$ )

IWBAT define simple interest, understand simple interest and the formula  $I = prt$ , and practice computing a balance in an account incorporating interest.

## Banking: Simple Interest

### Practice: 4.1.2

	Simple Interest Rate	Frequency of Simple Interest Calculation	Number of Periods per Year	Periodic Interest Rate	Number of Years	Total Number of Periods
Example	3.5%	Annually	1	3.5%	5	5
1. CD A	4.4%	Quarterly	4	1.1%	12	48
2. CD B	7.2%	Monthly	12	0.6%	8	96
3. CD C	5.6%	Semi-annually	2	2.8%	15	30

IWBAT define simple interest, understand simple interest and the formula  $I = prt$ , and practice computing a balance in an account incorporating interest.

## Banking: Simple Interest

### Practice: 4.1.2

	Principal	Periodic Interest Rate	Number of Periods	Interest Earned	Future Value of Principal $FV = I + P$
Example	\$8000	0.4%	60	\$1920	\$9920
4. Deposit A	\$6000	2.4%	14	\$2016	\$8016
5. Deposit B	\$9000	1.3%	16	\$1872	\$10,872
6. Deposit C	\$7000	0.5%	72	\$2520	\$9520

$$P = \frac{\$1872}{16 \cdot 0.013}$$

IWBAT define simple interest, understand simple interest and the formula  $I = prt$ , and practice computing a balance in an account incorporating interest.



### Calculate simple interest

02/21/17

Justina opened a savings account with a deposit of \$1,000. Saving for college, she left the money untouched from the time she was 12 until she was 18. This account paid 3.6% annual simple interest compounded quarterly. How much did Justina have in this account for college when she was ready to withdraw the funds? \$

$$I = P R \cdot T$$

$$\$1000(.036)(6) = \$216$$

$$FV = I + P$$

$$\$216 + \$1000 = \$1216$$

### Banking: Exponential Growth

02/21/17

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

## Banking: Exponential Growth

## Review of exponents

$$f(x) = b^x$$

A horizontal number line is drawn. A closed circle is at 0, and an open circle is at 4. A thick line segment connects the two circles, representing the interval  $[0, 4]$ .

$$b_1, b_2, \dots, b_X$$

## Banking: Exponential Growth

$$f(x) = a * b^x$$

$a$  = initial amount (principal)

$$b = \text{rate of change}$$

$x$  = time (number of periods)

Growth:  $b > 1$

Evaluate:

$$a = 500$$

$$b = 1.05 \quad 105\%$$

$$x = 24$$

$$f(24) = 50(1.05)^{24}$$

$$f(24) = 1612.55$$

5% growth rate

Decay:  $0 < b < 1$ 

Evaluate:

$$a = 500$$

$$b = 0.65 \quad (65\%)$$

$$x = 24$$

$$f(24) = 500(0.65)^{24}$$

$$f(24) = 0.01617$$

35% decay rate

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

## Banking: Exponential Growth

### Rice problem

Linear growth:

Day 1: 1 grain  $+1$

Day 2: 2 grains  $+1$

Day 3: 3 grains ...

Exponential growth:

Day 1: 1 grain  $\times 2$

Day 2: 2 grains  $\times 2$

Day 3: 4 grains ...  $60?$

On day 30, how many grains of rice do you have?

$$f(30) = 30 \text{ grains}$$

$$f(30) = 1(2)^{30}$$

$$f(30) =$$

$$1,073,741,824$$

bi mi th

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

## Banking: Compound Interest

02/21/17

Evaluate the exponential expressions

$$f(x) = 2^x$$

$$g(x) = \left(\frac{1}{2}\right)^x$$

$$f(2) = 2^2 = 4$$

$$g(2) = \left(\frac{1}{2}\right)^2 = \left(\frac{1^2}{2^2}\right) = \frac{1}{2^2} = \frac{1}{4}$$

$$f(8) = 2^8 = 256$$

$$g(8) = \left(\frac{1}{2}\right)^8 = \frac{1}{2^8} = \frac{1}{256}$$

$$f(2) * g(2) = 4 \cdot \frac{1}{4} = 1$$

### Banking: Exponential Growth

$$f(t) = P\left(1 + \frac{r}{n}\right)^{nt}$$

$n$  = number of compounding periods per year

Justina

$$f(6) = \$1000\left(1 + \frac{0.036}{4}\right)^{(4 \cdot 6)}$$

$$f(6) = \$1000(1 + 0.009)^{24}$$

$$f(6) = \$1239.90$$

As  $n \Rightarrow \infty$ , continuous

$$f(t) = Pe^{rt}$$

$$f(x) = a * e^x$$

Justina

$$f(6) = \$1000e^{(0.036 \cdot 6)}$$

$$f(6) = \$1241.10$$

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

### Banking: Exponential Growth

#### Practice: 4.2.2

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

## IWBAT

- practice using the formula  $FV = P(1 + r/n)^{nt}$  and
- explore continuous compounding as an example of exponential growth.

## 4.3 Compound Interest

Define compound interest for a general number of periods.

$$f(t) = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$P = \$2,500$$

$$r = 4\%$$

$$t = 10 \text{ yr.}$$

$$n = 1, 4, 12, 365$$

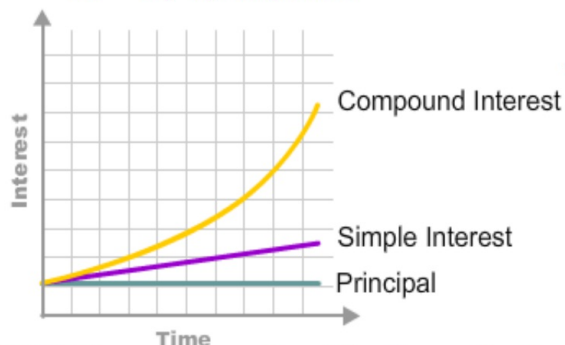
$$FV = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$FV = 2500\left(1 + \frac{.04}{1}\right)^{10} \approx \$3700.61$$

$$FV = 2500\left(1 + \frac{.04}{4}\right)^{40} \approx \$3722.15$$

$$FV = 2500\left(1 + \frac{.04}{12}\right)^{120} \approx \$3727.08$$

$$FV = 2500\left(1 + \frac{.04}{365}\right)^{(10 \cdot 365)} \approx \$3729.48$$



IWBAT practice using the formula  $B = p(1 + r)^n$  and reading compound interest tables and explore continuous compounding as an example of exponential growth.



## Banking: Compound Interest

### Compound interest table

Initial investment: \$12,000 at 10%

Frequency of compounding	5 years	10 years	15 years	20 years
Annually	\$19,326.12	\$31,124.91	\$50,126.98	\$80,730
Quarterly	\$19,663.40	\$32,220.77	\$52,797.48	\$86,514.81
Monthly	\$19,743.71	\$32,484.50	\$53,447.03	\$87,936.88
Daily	\$19,783.30	\$32,614.91	\$53,769.22	\$88,644.39

IWBAT practice using the formula  $B = p(1 + r)^n$  and reading compound interest tables and explore continuous compounding as an example of exponential growth.

## Banking: Compound Interest

### Continuous compounding

$$f(t) = Pe^{rt}$$

$$FV = Pe^{rt}$$

$$P = \$2,500$$

$$r = 4\%$$

$$t = 10 \text{ yr.}$$

$$FV = 2500 e^{(10 \cdot 0.04)} = 2500 e^{0.4}$$
$$FV = \$3729.56$$

IWBAT practice using the formula  $B = p(1 + r)^n$  and reading compound interest tables and explore continuous compounding as an example of exponential growth.

## Banking: Compound Interest

TVM solver (yellow calc.)

4%, 10yr, \$2500

APPS - Finance - TVM Solver

$$N = 10$$

$$I\% = 4 \quad 8$$

$$PV = -2500$$

$$PMT = 0$$

$$FV = 3727.08 \quad 5563.15$$

$$P/Y = 1$$

$$C/Y = 12 \quad 255$$

$$PMT = \boxed{END}$$

IWBAT practice using the formula  $B = p(1 + r)^n$  and reading compound interest tables and explore continuous compounding as an example of exponential growth.

## Banking: Compound Interest

4%

$$\begin{array}{r} .04 \\ 365 \overline{) 5212} \\ \underline{4} \quad \underline{2} \quad \underline{1} \end{array}$$

Practice: 4.3.2

IWBAT practice using the formula  $B = p(1 + r)^n$  and reading compound interest tables and explore continuous compounding as an example of exponential growth.

**Calculate compound interest.**

Julia invested \$1,234 in 1996 in a savings account with an annual interest rate of 1.2% compounded monthly. What should her account balance be in 2018? \$

$$FV = P \left(1 + \frac{r}{n}\right)^{(tn)}$$

$$N = 22$$

$$I\% = 1.2$$

$$PV = -1234$$

$$PMT = 0$$

$$C/Y = 12$$

$$FV = \$1234 \left(1 + \frac{.012}{12}\right)^{(12 \cdot 22)}$$

$$\$1606.61$$

**IWBAT**

- understand when to use the rule of 72 versus the rule of 69
- use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

## Banking: The Rule of 72 (and 69)

**Calculate and estimate the amount of time for an investment to double.**

How long will it take \$2,500 to double at an annual interest rate of 4%? Use the TVM solver.

$$\begin{aligned}n &= 17y \ 8mo & 17y \ 8mo & 17y \ 8mo \\I\% &= 4 \\PV &= -2500 & -3000 & -10,000 \\PMT &= 0 \\FV &= 5000 & 6000 & 20000 \\C/Y &= 1\end{aligned}$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

## Banking: The Rule of 72 (and 69)

### Rule of 72

If you save your money in an account with annual interest rate  $r$ , you can approximate the number of years needed to double your principal by

$$\frac{72}{r \cdot 100}$$

$$\frac{72}{R\%}$$

This approximation works for compounding periods up to weekly. *Monthly, annually, quarterly, semiannually*

How long will it take \$2,500 to double at an annual interest rate of 4%?

$$\frac{72}{4} = 18yr$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

### Banking: The Rule of 72 (and 69)

To have \$1,000,000 by your 60th birthday, how much do you need to invest at 6% interest at age 18? Solve using the Rule of 72.

60 1,000,000

48 500,000

36 250,000

24 125,000

18 93,750

12 62,500

0 31,250

$$n = 42$$

$$I\% = 6$$

$$PV = ? \quad 86,528$$

$$FV = 1,000,000$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

### Banking: The Rule of 72 (and 69)

#### Rule of 69

If you save your money in an account with annual interest rate  $r$ , you can approximate the number of years needed to double your principal by

$$\frac{69}{r \cdot 100}$$

Use this approximation for **daily** and **continuous** compounding.

$$\frac{69}{4} = 17.25 \text{ yr}$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.



## Banking: The Rule of 72 (and 69)

Inflation (reduction in buying power)

Use the Rule of 72 to calculate how long it will take for your buying power to halve with a 1.9% rate of inflation. Please answer in years and months.

$$\frac{72}{1.9} = 37_{yr} 10_{mo}$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

## Banking: The Rule of 72 (and 69)

Practice: 4.4.2

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

**Explain when to use the Rule of 72  
and when to use the Rule of 69.**

Rule of 69 is used to predict doubling time for values compounded daily and continuously.

Rule of 72 is used to predict doubling time for values compounded annually up to weekly. It is also used to predict the halving time of purchasing power due to inflation.

IWBAT understand how checking accounts work, including interest and how to write a check.

## Banking: Checking Accounts

What is a checking account? Why use one?

an account that holds your  
money help keep track  
of your finances  
money is easy to get to

to pay bills  
write checks to people  
buy gas, groceries (card)  
debit card

IWBAT understand how checking accounts work,  
including interest and how to write a check.

## Banking: Checking Accounts

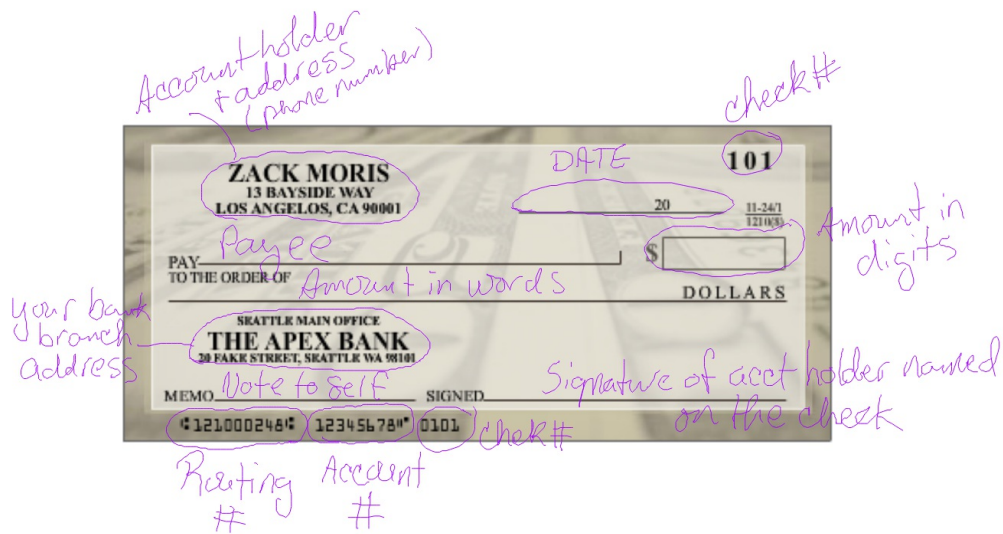
**Understand the fees associated with a checking account.**

monthly  
annual  
overdraft  
deposits of paper paycheck  
ATM  
per check  
teller  
paper statement  
returned checks  
withdraw  
Swipe

IWBAT understand how checking accounts work,  
including interest and how to write a check.

## Banking: Checking Accounts

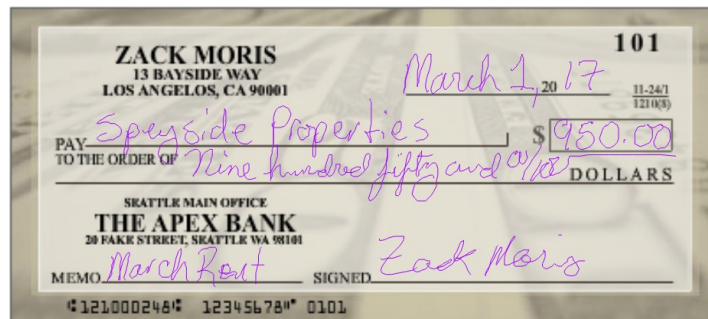
### Parts of a check



IWBAT understand how checking accounts work, including interest and how to write a check.

## Banking: Checking Accounts

Your \$950 rent is due on the first of the month to Speyside Properties. Fill out the check for next month's rent payment.



IWBAT understand how checking accounts work, including interest and how to write a check.

## Banking: Checking Accounts

### Check register

Check Number	Date	Description of Transaction	Payment/Debit (-)	Fee	Deposit/Credit (+)	Balance

Number	Date	Transaction	Withdrawal	✓	Deposit	\$
101	3/1	March Rent - Speyside	950.00			1562.78
						612.78

Record the rent check in your register.

Your previous balance was \$2874.26.

IWBAT understand how checking accounts work, including interest and how to write a check.

## Banking: Checking Accounts

### Check endorsements

**WARNING** DO NOT CASH THIS CHECK WITHOUT RECEIVING CASH FROM BANK

ENDORSE HERE  
*Jack Morris*

DO NOT WRITE OR SIGN BELOW THIS LINE.

Play

**Blank endorsement:**

In a blank endorsement, there are no instructions on the back of a check, just a signature. A check with a blank endorsement can be deposited into your account or be exchanged for cash. Blank endorsements are acceptable in business transactions. Be aware that if there are no specific instructions, the bearer of the check can take the cash.

**WARNING** DO NOT CASH THIS CHECK WITHOUT RECEIVING CASH FROM BANK

**FOR DEPOSIT ONLY**

ENDORSE HERE  
*Jack Morris*

DO NOT WRITE OR SIGN BELOW THIS LINE.

Play

**Restrictive endorsement:**

A restrictive endorsement explicitly states "for deposit only." This means it cannot be cashed. A restrictive endorsement is a good safety measure, especially when you ask someone to deposit a check for you (for example, in business).

**WARNING** DO NOT CASH THIS CHECK WITHOUT RECEIVING CASH FROM BANK

**PAY TO THE ORDER OF**

ENDORSE HERE  
*Jack Morris*

DO NOT WRITE OR SIGN BELOW THIS LINE.

Play

**Full endorsement:**

A full endorsement is signed by the person it is made to but has instructions to pay the check to someone else. For example, if you get a check for \$65 but you owe the money to your friend Pete Smith, you can sign the back of the check and write "Pay to the order of Pete Smith." To cash the check, Pete will need to sign it.

IWBAT understand how checking accounts work, including interest and how to write a check.



## Banking: Checking Accounts

DEPOSIT TO THE ACCOUNT OF

NAME

DATE

PLEASE BE SURE EACH ITEM IS PROPERLY ENDORSED USE OTHER SIDE TO LIST ADDITIONAL CHECKS

903

**YOUR BANK**

DEPOSITS SUBJECT TO CORRECTION BY PROOF DEPARTMENT

ALL ITEMS CREDITED SUBJECT TO THE FINAL PAYMENT

ACCOUNT NUMBER

\* 1 2 3 4 5 6 7 8

@ 9876543210

☒ CASH

SUB TOTAL

LESS CASH RECEIVED

\$

IWBAT understand how checking accounts work, including interest and how to write a check.

## Banking: Balancing your Checkbook


02/28/17

**Fill out the check register completely using the sample bank statement.**

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

## Banking: Balancing your Checkbook

## Learning how to read bank statements.

 <b>FIRST BANK OF APEX</b> 1234 Main St. City, State		CHECKING ACCOUNT STATEMENT Page : 1 of 1			
JOHN DOE 1111 Balance St. City, State		Statement period 2010-10-09 to 2010-11-08		Account No. 123-45-678	
Date	Description	Ref.	Debits	Credits	Balance
2010-10-08	Previous balance				.55
2010-10-14	Payroll Deposit - HOTEL			694.81	695.36
2010-10-14	Web Bill Payment - MASTERCARD	9685	200.00		495.36
2010-10-16	ATM Withdrawal - INTERAC	3990	21.25		474.11
2010-10-16	Fees - Interac		1.50		???
*** Totals ***			???	???	

101

102 \*

103

104

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

## Banking: Balancing your Checkbook

Reconciliation *to go over the differences between your checkbook and bank statement*

What you need to reconcile:

1. deposits (direct deposit or otherwise)
2. interest
3. checks cleared
4. outstanding checks
5. bank fees
6. cash withdrawals
7. online bill payments
8. debit card transactions
9. transfer of funds

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

## Banking: Balancing your Checkbook

### Reconciling tools

#### Verifying That Two Groups of Numbers May Add Up to the Same Value

1. Add all *digits* of all the numbers in each column.
2. Do this again if needed until you reach a single digit.
3. Compare the two single digits you get in the end.

If they do not agree, then the numbers in the two columns cannot add up to the same value.

Imagine the numbers in the first column are 23, 14, and 9, and the second column contains 20 and 27. You want to know if the columns are balanced — that is, do the numbers in the first column add up to 47?

$$\begin{array}{r} 235 \\ 145 \\ \hline 9 \\ 19 \\ 10 \\ 1 \end{array} \quad \begin{array}{r} 202 \\ 279 \\ 11 \\ 2 \end{array}$$

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

## Banking: Balancing your Checkbook

Transposed numbers - numbers whose positions have been switched, eg. 43, 34

Columns should add to the same total, but do not. Subtract column sums. If the difference is divisible by 9, look for transposed numbers (e.g. 34 instead of 43).

52	52	752	752
75	57	486	486
38	38	408	804
<hr/>	<hr/>	<hr/>	<hr/>
165	147	1646	2042
			396 ÷ 9
			44
	$\frac{165}{-147}$		
	<hr/>		
	18 ÷ 9 = 2		

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

## Banking: Balancing your Checkbook

Practice: 4.6.2

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

**What does it mean to reconcile your checkbook?**

*When you check your bank statements and compare them to your check register*

IWBAT

- understand the various fees that may be associated with a checking account
- decide whether a checking account is appropriate given a person's particular needs.



## Banking: Comparing Checking Accounts

**Compare two checking accounts based on various factors.**

- Debit card?
- Per check fee?
- ATM fee?
- Monthly service fee?
  - Minimum balance?
  - Direct deposit?
- Interest?
  - Final balance?
  - Average monthly balance?

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

## Banking: Comparing Checking Accounts

Typical account features

Account Features	Basic Free Checking	Student Checking	Regular Checking	Interest Checking
ATM access	FREE ✓	FREE ✓	FREE ✓	FREE ✓
Online Bill Pay E-mail Alerts Online Check Images Online Statements	FREE ✓	FREE ✓	FREE ✓	FREE ✓
Earns Interest				YES ✓
Monthly Service Fee	None with direct deposit, or 5 or more debit card purchases during each statement period; otherwise \$6	None, must be a student 18+ years old	Waived with \$1000 minimum checking balance; otherwise \$12	Waived with \$1500 minimum checking balance; otherwise \$20
Debit Card	FREE ✓	FREE ✓	FREE ✓	FREE ✓

Fractional reserve banking -

A type of banking system in which only a fraction of bank deposits are backed by actual cash on hand. The rest of the money deposited is not available for immediate withdrawal.

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

### Banking: Comparing Checking Accounts

If Bank A charges a monthly service fee of \$2.50 and a per-check fee of \$0.15, while Bank B charges a monthly service fee of \$4 and a per-check fee of \$0.05, which bank will charge a customer more in fees if she writes 18 checks per month, and by how much? Is this bank ever a better choice?

$$\text{Bank A } 18(.15) + 2.5 = \$5.20 \quad 30\text{¢ more for Bank A}$$

$$\text{Bank B } 18(.05) + 4 = \$4.90$$

$$\begin{array}{r} x(.15) + 2.5 = x(.05) + 4 \\ -x(.05) - 2.5 \quad -x(.05) - 2.5 \\ \hline x(.10) = 1.5 \end{array}$$

$$\frac{x(.10)}{.10} = \frac{1.5}{.10}$$

$$x = 15 \text{ checks}$$

< 15 checks, use Bank A

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

### Banking: Comparing Checking Accounts

#### Practice: 4.7.2

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

**Explain the difference between a savings account and a checking account.**

Savings pays you interest

Checking has monthly fees

Savings can restrict access to the money

Checking allows access to your money 24x7

**What features would a good checking account for you include?**

Pretty Card

low fees

preloaded

no check cashing fee

free ATMs everywhere

Account App

Interest

IWBAT

- work with APR and APY to calculate interest earned from a savings account
- perform calculations involving deposits and withdrawals.

Banking: Savings Accounts

**APR vs. APY**

**APR** is the annual percentage *rate*. It is the annual rate of interest without taking into account the number of compounding periods.

**APY** is the annual percentage *yield*. This is a measure of the full amount of money earned over a year, which includes any compound interest.

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.



## Banking: Savings Accounts

**APY** is higher than **APR** if there is more than one compounding period in a year, so *lenders* often express their interest rates in the form of APR since it is lower.

*Borrowers* (such as banks and other savings institutions) often express interest rates in APY since it is higher.

$$r = \text{APR}$$

$$\text{APY} = \left(1 + \frac{r}{n}\right)^n - 1$$

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.

## Banking: Savings Accounts

"interest calculated on an annual basis, accrued daily, and paid monthly."

7) The beginning balance of Otto's savings account for the month of May was \$1800, and it remained this way for the first 12 days of the month. On May 13, Otto made a withdrawal of \$400, so his balance changed, and it remained the same for a total of 8 days. On May 21, Otto made a deposit of \$1200, so his balance changed again, and it remained the same for a total of 11 days to finish out the month. If Otto's savings account has an APR of 7.3%, calculates interest daily, and pays interest at the end of the month, how much did Otto earn in interest in the month of May?

$$\begin{aligned} & \$1800 \left[ \left(1 + \frac{.073}{365}\right)^{12} - 1 \right] = \$4.32 \\ & - 400 \\ & \$1400 \left[ \left(1 + \frac{.073}{365}\right)^8 - 1 \right] = \$2.24 \\ & + 1200 \\ & \$2600 \left[ \left(1 + \frac{.073}{365}\right)^{11} - 1 \right] = \$5.72 + \\ & \quad \quad \quad \underline{\$12.28} \end{aligned}$$

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.



## Banking: Savings Accounts

### Practice: 4.8.2

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.

## Banking: Comparing Savings Accounts

03/06/17

### What is the difference between APR and APY?

Annual Percentage Rate  
no compounding

Annual Percentage Yield  
includes compounding

IWBAT understand how FDIC insurance works and examine various types of savings accounts based on risk and liquidity.

## Banking: Comparing Savings Accounts

### Understanding how FDIC insurance works.

The FDIC insures deposits to all types of accounts including:

- checking accounts
- basic savings account
- money market
- certificate of deposit (CD)

<https://www.fdic.gov/deposit/covered>

What is covered and how much?

Single Acct. \$250,000

Joint Acct. \$250,000 per account holder

Self-directed Retirement Acct. \$250,000

## Banking: Comparing Savings Accounts

If you have \$400,000, how should you divide it up?  
Or should you?

\$175,000	Single savings
\$175,000	Joint checking
\$50,000	son's single savings
<hr/>	
\$60,000	daughter's single savings
\$170,000	Joint checking
\$170,000	single savings

## Banking: Comparing Savings Accounts

Liquidity - the ability to access cash quickly

Types of Savings Accounts

- piggy bank
- basic savings account
- money market savings
- certificate of deposit (CD)
- savings bond



Increasing  
Interest %



Increasing  
Liquidity

General rule: the higher the interest rate, the lower the liquidity

IWBAT compare two savings accounts based on various factors and examine various types of savings accounts based on risk and liquidity.

## Banking: Comparing Savings Accounts

### Practice: 4.9.2

IWBAT compare two savings accounts based on various factors and examine various types of savings accounts based on risk and liquidity.

## 4.10 Savings & Checking Wrap up

03/07/17

### **How does FDIC insurance work?**

IWBAT demonstrate my proficiency in this unit on practice problems before the unit test.

## Banking: Savings &amp; Checking Wrap up

## Complete Practice 4.10.2

Simple Interest

$$I = Prt \quad FV = P + Prt$$

Compound Interest

$$A(t) = P(1 + r/n)^{(n*t)}$$

$$A(t) = P\left(1 + \frac{r}{n}\right)^{n*t}$$

$$APY = (1 + r/n)^n - 1$$

$$APY = \left(1 + \frac{r}{n}\right)^n - 1$$

#4 graph on calculator + transfer to your paper

IWBAT demonstrate my proficiency in this unit on practice problems before the unit test.



Banking: Savings & Checking Wrap up  
**Final questions on 4.10.2?**

03/08/17

IWBAT demonstrate proficiency on my unit test.

Banking: Savings & Checking Wrap up

03/09/17

**Complete Unit Test 4.10.5**

IWBAT demonstrate proficiency on my unit test.